



National Aeronautics and Space Administration  
Goddard Space Flight Center

Wallops Flight Facility, Wallops Island, Virginia

# Inside Wallops

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## ***Tiny Hearts Monitored by NASA Technology***

A NASA technology originally used to measure airflow over airplane wings has been successfully used to develop a portable, non-invasive, easy-to-use fetal heart monitor.

The new clinically proven fetal heart monitor takes advantage of aerospace technology to make it more affordable, portable and easy to use by expectant mothers in their own homes. What's more, it "listens, documents and stores" fetal heart-rate data without injecting energy into the womb, making it totally non-invasive.

A team of aerospace researchers from NASA's Langley Research Center worked with Veatronics, Inc., of Charlotte, NC, to convert the technology to this innovative medical application. NASA granted the company a license to market one or more commercial products based on the technology.

"Because the material we used for wing surface measurements is flexible, it is ideally suited to fit over the curved surface of a maternal abdomen for fetal testing," said Allan Zukerwar of Langley's Advanced Measurement and Diagnostics Branch.



*Fetal Heart Monitor NASA Photo*

Current fetal heart-monitoring devices generally work well but cost many thousands of dollars and can only be used in a clinic or doctor's office.

NASA developed the portable technology at the suggestion of a medical doctor in a remote area that suffers from a lack of appropriate health care. For several reasons, when expectant mothers do not receive necessary prenatal care, the result is often increased fetal mortality.

In its present form, an at-home patient would strap a wide, soft belt embedded with sensors over her belly, tune a computerized control device to hear the fetal heartbeat and send the signal directly to her doctor's office via the Internet. The device is as easy to use as tuning a radio, which one doctor considers essential to its ultimate success.

"I think the portability of this technology will make it very useful,"

said Dr. Kevin Gomez, a specialist in maternal fetal medicine at Atlanta Perinatal Associates, Atlanta, GA. "Instead of having patients travel to where the technology is, have the technology travel to the patients."

Dr. Gomez led a recently completed series of NASA-sponsored clinical trials at Morehouse School of Medicine in Atlanta. Clinical trials also were sponsored at Eastern Virginia Medical School, Norfolk, VA, and at Encino/Tarzana Medical Center, Encino, CA. Among other things, the trials are expected to establish that the NASA acoustic monitor meets federal Food and Drug Administration guidelines. Results are being compared to those recorded via Doppler ultrasound and scalp-electrode monitors, and also to standard accepted measurements.

The Morehouse trials, along with continuing investigations at Atlanta Perinatal, proved to Dr. Gomez's satisfaction that the technology offers an easy-to-use alternative to visits to the doctor's office. This is especially important, he explained, for high-risk patients who should be examined twice a week or more, or for patients who cannot easily travel. All of Dr. Gomez's patients are considered high-risk, due to maternal complications of pregnancy or fetal abnormalities.

Even perfectly healthy patients may not be able to afford the time or money for periodic trips to the doctor — or may find themselves ordered to long periods of bed rest.

The new method of checking fetal heart behavior might actually prove to be a better way of monitoring some pregnancies than technologies now in use. In addition, the system could provide objective data to complement information gained from other methods.

## ***Wallops Open House June 24, 2000***

***Featuring:***

***NASA, Navy, NOAA, U.S.  
Coast Guard, and Virginia  
Space Flight Center***

## ***Wallops Shorts.....***

### ***Sounding Rocket Launch***

A NASA Black Brant XII sounding rocket was successfully launched from the Poker Flat Research Range, AK on Feb. 25.

The experiment was to measure particle acceleration and wave production in the auroral ionosphere simultaneously from three points in space. The main payload ejected two free flying sub-payloads that made identical measurements as they moved away from the main payload. Science data was obtained from the main payload as well as both sub-payloads. The principal investigator was Dr. Chuck Carlson of the University of California, Berkley.

Actual altitude achieved was 739 miles (1190.7 km), predicted altitude was 765 miles (1230.7 km).



*Carl Johnson, Information Services and Advanced Technology Branch, and Wicomico High School teacher, Beth Royal, prepare for a presentation to students in Royal's Computer II class during Engineers Week activities.*

*PAO Digital Photo.*

## ***Endeavour Crew Lands; Completes Successful Mapping Mission***

The crew of STS-99 ended their mission to obtain data for a detailed topographical map of the Earth when Commander Kevin Kregel set Endeavour down Feb. 23 on Runway 33 at the Shuttle Landing Facility at the Kennedy Space Center. The landing also completed the first Shuttle mission of the 21st century.

During the Shuttle Radar Topography Mission, Endeavour's radar covered almost 99 percent of the planned mapping area at least once. The crew returned with 332 high-density data tapes (roughly equal to 20,000 CD-ROMs) containing images obtained by the Shuttle's radar. The data will be used to create the most complete global maps of Earth ever developed.

## Health Hints On-Line

by R. Barry Spinak, M.D.

The monthly newsletter from the Wallops Health Unit is available on-line through the Health Unit web page: [http://www.wff.nasa.gov/~healthline/wff\\_health.html](http://www.wff.nasa.gov/~healthline/wff_health.html) Click on the link to the Health Hints issue of your choice (November 1999 to February 2000).

To see the current issue (February) you can go to <http://www.wff.nasa.gov/~healthline/200cover.html>.

Paper copies of Health Hints also are available at the Health Unit, Building F-160. Be sure to check the Health Unit web site regularly for timely announcements and new articles.

## St. Patrick's Day Dinner & Dance



March 17

Building F-3 -- Rocket Club

Dinner : 6 - 8 p.m.  
Corned Beef  
and Oven  
Baked  
Chicken



Catered by  
W.W. Catering  
& Jonithan  
Stone



Dance: 8 - 11 p.m.  
Music provided by  
"Why Not Mike"

\$15 - Dinner and Dance  
\$3 - Dance Only

For tickets call Pam Milbourne,  
x2020 or Sandy Gunter, x1454.

## Tips from the Gardner

Growing plants from seeds and transplants is an economical way to start your garden. The first year a young perennial spends in the garden is generally devoted to expanding its root system and growing new stems and leaves. If the plant does bloom, it will not be as showy as it will be in later years.

Avoid the temptation to space small plants close together because it's important to allow enough room for future growth. They won't grow to their full potential if they are crowded.

Although perennials are hardier than annuals, they still need to be gradually acclimated to outside conditions before being transplanted into the garden. A cold frame makes an ideal transitional home for transplants.

*This space reserved for mailing labels.*

## Post-Retirement Transition Program Briefings

Goddard Space Flight Center is offering several retirement transition programs for employees considering OPTIONAL retirement. The Center does not have Early-Out or Buy-Out authority.

Briefings on these programs will be held at Wallops on Feb. 29, 10 to 11:30 a.m., in Building E-104, Room 310. The briefings will be held at Greenbelt on March 1 and 7, 1 to 2:30 p.m., in Building 1, Room E100B.

For more information, contact Janet Morgan on x66-4709 or Khrista White on x66-8208.

*Safety is as easy as ABC.  
Always Be Careful.*



Scott Webb (right) and Jay Savage, Information Services and Advanced Technology Branch, and Betty Flowers, Public Affairs Office, spoke to Northampton High School and Broadwater Academy students during a Career Fair held at Northampton High School on Feb. 23.

PAO Digital Photo.

Post Retirement  
Transition Program  
February 29  
10 a.m. - Noon  
Building E-104  
Room 310



American Red Cross

Blood Drive  
March 27, 2000  
9:30 a.m. - 2:30 p.m.  
Building F-3

Call the Health Unit, x1266 for an appointment.

## Safety Training Video Library

The Wallops Safety Office has safety training videos available for check-out at the Wallops Library in Building E-105. These videos are suitable for employee training and for monthly safety meetings. The following is a listing of available training videos:

Wallops Safety Awareness  
GSFC Safety Awareness  
Hazard Communication  
NASA Safety Reporting System  
Completing NASA Form 1627  
Chemical Hygiene (3 Modules)  
Arctic Survival  
Indoor Air Quality

For more information, visit the Wallops Safety Office web site at <http://www.wff.nasa.gov/~code803/pages/resources.html>.

## Wallops Fire Department Responses

Feb. 10 through Feb. 24

- 74 - Aircraft standbys
- 1 - Aircraft emergency - engine fire
- 1 - HazMat spill
- 6 - Fire alarms
- 1 - Ambulance call
- 1 - Mutual aid ambulance call to Chincoteague
- 1 - Mutual aid structure fire to assist Greenbackville Volunteer Fire Department with a fire at historic Corbin Hall.

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